



Australian Government

Department of Education, Employment and Workplace Relations

CPCBC4019A Apply sustainable building design principles to water management systems

Release: 1

CPCBC4019A Apply sustainable building design principles to water management systems

Modification History

Not Applicable

Unit Descriptor

Unit descriptor This unit of competency specifies the outcomes required to apply sound water management principles as part of the implementation of sustainable building and construction processes. The range of legislative and council planning requirements are addressed in addition to the need to respond to growing consumer demand for sustainable buildings and environmentally friendly developments.

Application of the Unit

Application of the unit This unit of competency supports the needs of builders, site managers and forepersons, and estimators in the building and construction industry.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units Nil

Employability Skills Information

Employability skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Apply legislative and planning requirements for effective water management systems to the building process.	1.1. Current relevant state, territory and council requirements for <i>effective management of water systems</i> are identified as part of the building and construction design process. 1.2. Client needs and expectations for the design and use of water management systems are identified and negotiated. 1.3. Expert plumbing and other advice is gathered as part of the planning process. 1.4. Relevant Australian standards are consulted to identify the implications for the conduct of the building project. 1.5. Environmental and resource efficiency issues are identified and addressed.
2. Identify and apply opportunities for improved water management.	2.1. Impact of client and resident behaviour on effective water management and use is identified. 2.2. Opportunities to select efficient water management <i>fixtures and appliances</i> as part of the building design are identified, evaluated and applied. 2.3. Relative installation and ongoing usage costs of efficient water management fixtures and appliances are quantified and communicated to the client. 2.4. Efficient water management fixtures and appliances are used as negotiated within the building project.
3. Apply sound water management principles to the site and its landscaping.	3.1. Soil and sediments are contained to the site as part of the site preparation and management. 3.2. Sound waste management practices are used on site. 3.3. Effective sediment control barriers are in place and used. 3.4. Topsoil and local rocks are stockpiled and retained for later use in landscaping. 3.5. Appropriate input is made to the landscape design process to optimise water use, reuse and recycling.
4. Promote best practice in water management.	4.1. Selection, location and installation of tanks to optimise the reuse of roof water are evaluated and implemented. 4.2. Costs, planning implications and construction techniques for the reuse of grey water are identified and implemented as negotiated with the client. 4.3. Costs and performance characteristics of various materials used in the installation of water management systems are identified and negotiated with the client.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills for this unit are:

- application of Australian standards and codes and manufacturer specifications
- evaluation of alternative water management systems
- communication skills to:
 - communicate information to client
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - identify and negotiate client requirements
 - read and interpret legislative and planning requirements
 - seek advice
 - use language and concepts appropriate to cultural differences
 - use and interpret non-verbal communication
- numeracy skills to apply calculations
- work safely to OHS regulations and site requirements.

Required knowledge

Required knowledge for this unit is:

- building and construction industry contracts
- relevant state or territory building and construction codes, standards and government regulations
- workplace safety requirements.

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

This unit of competency could be assessed by the effective application of mechanical principles and concepts to design of a sustainable water management system.

This unit of competency can be assessed in the workplace or a close simulation of the workplace environment, provided that simulated or project-based assessment techniques fully replicate construction workplace conditions, materials, activities, responsibilities and procedures.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

A person who demonstrates competency in this unit must be able to provide evidence of the ability to:

- source and analyse legislative and planning requirements for water management in the building process
- calculate costs and savings of implementing alternative water management systems
- apply principles of effective water use, recycling and reuse to the planning of a building project
- produce work plans that reflect effective water management.

Context of and specific resources for assessment

This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.

Assessment of essential underpinning knowledge will usually be conducted in an off-site context.

Assessment is to comply with relevant regulatory or Australian standards' requirements.

Resource implications for assessment include:

- documentation that should normally be available in either a building or construction office
- relevant codes, standards and government regulations
- office equipment, including calculators,

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photocopiers and telephone systems

- computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
- a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
- a suitable work area appropriate to the construction process.

Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

Method of assessment

Assessment methods must:

- satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package
- include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application
- reinforce the integration of employability skills with workplace tasks and job roles
- confirm that competency is verified and able to be transferred to other circumstances and environments.

Validity and sufficiency of evidence requires that:

- competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
- where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice, with a decision on competency only taken at the point when the assessor has complete confidence in the person's demonstrated ability

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and applied knowledge

- all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence.

Assessment processes and techniques should as far as is practical take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.

Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Effective management of water systems includes:

- grey water recycling
- roof water reuse.

Fixtures and appliances include:

- dishwashers
- showerheads (low flow and maxi flow)
- spas
- taps
- toilets
- washing machines.

Waste management practices include ensuring that:

- run-off from the cleaning up of equipment (e.g. painting) is handled appropriately
- waste bins are used and emptied appropriately.

Unit Sector(s)

Unit sector Construction

Co-requisite units

Co-requisite units Nil

Functional area

Functional area